

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

**WHO'S THE BOS-I? BASE OPERATING SUPPORT INTEGRATOR AND
SENIOR AIRFIELD AUTHORITY AT DEPLOYED BASES**

by

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ABSTRACT

The current method of providing base operating support at deployed airbases is anything but a joint operation. Rather than providing support jointly or having joint interdependence, the Army and Air Force practice de-confliction and prefer that the two Services simply stay out of each other's way. Based on vague CENTCOM guidance for Base Operating Support Integrator (BOS-I) and Senior Airfield Authority (SAA) responsibilities, the airfield becomes a base within a base run by the Air Force while the Army runs the rest of the installation. The problem is that the inherent requirements of running a military airfield in a combat zone do not allow for this disjointed support structure. All aspects of airfield operations cannot be neatly constrained within the confines of the airfield fence thus creating friction between the two Services. Further complicating support operations is the fact that the Army does not have organic military forces trained and organized to develop, operate, and maintain bases, especially bases with airfields with major fixed-wing operations.

This research paper argues that the BOS-I and SAA responsibilities should be executed by a single organization at deployed airbases in order to provide more effective and efficient installation and airfield support to the joint warfighter. Furthermore, the Air Force is better organized and trained than the Army to provide these functions at deployed airbases. The paper first examines CENTCOM guidance on BOS-I and SAA. How the Services are organized to provide both home station and deployed installation support as well as how their engineering forces are trained in these roles is discussed. Some of the problems with how BOS-I and SAA are being provided in the AOR are also examined using Joint Base Balad, Iraq as a case study. The paper concludes with recommendations on how to provide better BOS-I and SAA support in the future.

PROBLEM BACKGROUND AND SIGNIFICANCE

The recently renamed Joint Base Balad in Iraq used to be anything but a joint operation. The sprawling installation located approximately 42 miles North of Baghdad is home to the 332nd Air Expeditionary Wing (AEW), responsible for providing combat airpower in Iraq and parent unit to all Air Force forces in the country, and the 3rd Expeditionary Support Command, responsible for Army logistical support throughout Iraq. If the term “joint” is defined as operations involving one or more of the military departments, then Balad met the technical definition only because there were organizations from the Army, Air Force, and Navy operating out of the base simultaneously. However, when it came to running the installation itself, operations were far from the true intention of jointness. In fact, the installation used to be known by two different names depending on which service was doing the talking. The Army referred to it as Logistics Support Area (LSA) Anaconda while it was called Balad Airbase by the Air Force. Rather than having a truly joint operation, the Army and Air Force practiced de-confliction and preferred that the two Services simply stayed out of each other’s way.

USCENTCOM designated the Army as the Base Operating Support Integrator, or BOS-I, with responsibility for providing “efficient use of mission support resources” for all forces on the base as well as master planning of facilities and land use. The Air Force was designated as the Senior Airfield Authority, or SAA, and was charged with providing airfield operations and all maintenance and construction of associated infrastructure and facilities on the airfield.¹ Therefore, the Air Force took care of all support and operations inside the airfield fence and the Army was supposed to take care of support functions for the rest of the base. Under this system the airfield was, in effect, a base within a base. As long as the Services stayed within their

respective boundaries and didn't infringe on the other's territory, things went relatively smoothly.

The problem is that the inherent requirements of running a military airfield in a combat zone do not allow for this disjointed support structure. All aspects of airfield operations cannot be neatly constrained within the confines of the airfield fence. Runway clear zones and imaginary surfaces, munitions loaded aircraft parking areas and their associated explosive safety quantity distance arcs (QD arcs), rotary and fixed-wing aircraft traffic patterns, and airfield support facilities are but a few of the unique aspects of airfield operations that extend into the BOS-I provider's realm of real estate control. Planning for these airfield operation aspects must commence as soon as a base is selected to host combat aircraft. Yet this airfield planning expertise is not resident in the Army's military engineer force. By the time Air Force engineers were brought in to establish airfield operations, long term base layout issues affecting the airfield had already been made. One case in point at Balad is the initial siting of the waste disposal burn pit. Without regard for the prevailing winds in the area, Army forces sited the burn pit upwind of the airfield and much of the residential areas of the base. The resulting thick black smoke from the pit would often blow back over the airfield and living areas. The smoke could get so bad that it would require flight operations to be shutdown on average at least once a month.² This lack of accounting for the prevailing winds and aircraft traffic patterns not only had the operational impact of hindering air support to the warfighter, it could also have contributed to long term health issues of base personnel subjected to breathing of toxin laden smoke.³

Clearly when the BOS-I and SAA are separate entities they need to closely coordinate their respective operations to provide required support to warfighters operating out of the installation. Coordinating these functions is more difficult because the Army and Air Force are

organized and trained to provide base support at deployed locations very differently. The Army tends to take a more ad hoc approach to deployed base support by assigning that mission to many different types of support and even operational units. In fact, it is not uncommon for an infantry or artillery unit to be assigned the BOS-I role at deployed bases. By contrast, the Air Force has an extensive organic capability to provide base operating support at deployed locations. The same units that provide base support at home station Air Force bases provide the same support at deployed locations. These differences can often result in conflicts where the SAA and BOS-I responsibilities do not neatly fall within their respective boundaries of control.

This construct of having two separate Services with different models responsible for support operations on the same installation results in inconsistent application throughout the theater and inefficient support to the joint warfighter. BOS-Is and SAAs at each installation must interpret the CENTCOM guidance individually and develop a working coordination model for their installation. The success of integrating airfield and base support therefore relies on the personal relationships, attitudes, and skill sets of those charged with these missions. However, as one recent USAF engineering unit commander in Iraq stated, “The county option is no way to run a war.”⁴ This research paper argues that the BOS-I and SAA responsibilities should be executed by a single organization at deployed airbases in order to provide more effective and efficient installation and airfield support to the joint warfighter. Furthermore, the Air Force is better organized and trained than the Army to provide these functions at deployed airbases. The paper will first examine CENTCOM guidance on BOS-I and SAA. How the Services are organized to provide both home station and deployed installation support as well as how their engineering forces are trained in these roles will next be examined. Some of the problems with how BOS-I and SAA are being provided in the AOR will next be examined using Joint Base

Balad, Iraq as a case study. Finally, the paper will conclude with recommendations on how to provide better BOS-I and SAA support in the future.

RESEARCH LIMITATIONS

There are some limitations to this research. In addition to general engineering capabilities, BOS also typically involves providing functions such as contracting, messing, medical, communications, and security. However, the focus of this paper will be on the general engineering role of the BOS-I and how it relates to airfield engineering operations. The paper also focuses on conditions in the CENTCOM AOR due to it being the theater where US forces are currently most heavily engaged. However, the concepts, issues, and recommendations should also apply to BOS-I and SAA at contingency bases in other AORs. Finally, the discussion is centered on installations where the Army and Air Force are co-located. Naval forces are typically ship-based and the lean nature of Marine forces does not normally allow them to provide large scale logistical support to other Services. Therefore, BOS for those Services is not examined.

CENTCOM GUIDANCE ANALYSIS

To find out how joint forces should be operating in the CENTCOM AOR, one must first examine the CENTCOM guidance on BOS-I and SAA. USCENTCOM Regulation 415-1, *The Sand Book*, explains the function of the Base Operating Support-Integrator as:

The BOS-I acts on behalf of all forces/Services on the camp. The BOS-I will coordinate contracting support and the efficient use of mission support resources. Where shortfalls or opportunities for efficiencies exist, USCENTCOM may task components/JTFs to provide or coordinate specific capabilities (e.g. services, infrastructure, security, and communications). The BOS-I will provide master planning for facilities and real estate. BOS-I responsibilities include collecting and prioritizing construction requirements and seeking funding support, environmental management and hazardous waste disposal.⁵

The *Sand Book* definition is certainly more helpful than the lack of any guidance on BOS-I in joint doctrine, but it can hardly be considered definitive as to what functions encompass BOS. Instead, the ambiguous term “mission support resources” is included. Just about everything supports the mission, so this term can be widely interpreted to mean different things to different people. To avoid this confusion, joint doctrine should clearly define both BOS and BOS-I. Since these terms deal with logistics support, the core joint logistics publication JP 4-0 should clearly describe the two terms.

While not clearly indicating what BOS entails, the CENTCOM BOS-I definition gives insight into responsibilities with respect to installation engineering functions when it discusses the roles of master planning, prioritizing and seeking construction funding support, and environmental management. These installation engineering functions are part of general engineering capabilities as shown in Figure 1 in Appendix A from JP 3-34. Thus in order to be the BOS-I, the designated unit should have the resident expertise to, at a minimum, provide the general engineering functions shown in Figure 1 that pertain to running an installation. The applicable installation engineering activities include traditional facilities and utilities construction, repair, modification, maintenance, and operations, engineering technical support, facilities engineering and management, power generation and distribution support, environmental support, real estate management, and airfield damage repair. Additionally, some non-traditional engineer activities such as fire and emergency services, explosive hazard disposal, chemical/biological/radiological/nuclear/high-yield explosives (CBRNE) defense, and disaster preparation and consequence management are also included under the general engineering capabilities. Even if some of these functions were contracted out to one of the

contractor augmentation programs, (i.e. LOGCAP or AFCAP), the installation engineer organization should have resident expertise in these areas in order to be able to effectively oversee and perform as the government's quality assurance evaluator (QAE) or contracting officer's representative (COR) for the contract.

CENTCOM's guidance on Senior Airfield Authority is similarly defined in *The Sand Book*. It defines the SAA as:

The component responsible for the control, operation, and maintenance of the airfield to include the runways, associated taxiways, and parking ramps as well as land and facilities whose proximity affects airfield operations. The SAA is responsible for coordination of all component/JTF aircraft and airfield facilities (responsibilities will not be split among Services). The SAA controls flight line access and is responsible for the safe movement of aircraft in the airport traffic area and on all airfield surfaces. The SAA will develop and coordinate airfield improvement master plans with the BOS-I and submit them to the BOS-I for inclusion in the overall base master plans. The SAA will also seek funding from their component for airfield operations, maintenance and construction requirements.⁶

This definition also delineates the subordinate role of the SAA with respect to the BOS-I who has overall responsibility for land use on the base. The description states the SAA must coordinate airfield master plans with the BOS-I. This at least implies that the BOS-I has decision authority on whether the SAA is allowed to make improvements to the airfield environment that it deems necessary for mission accomplishment. This can clearly be a source of confusion and disagreement if the SAA and BOS-I are both competing for the same piece of real estate on the installation. An additional source of friction and confusion generated from this definition deals with the phrase stating the SAA is responsible for "...land and facilities whose proximity affects airfield operations." The question then becomes who determines what land and facilities affect airfield operations? Is it the SAA? What if the BOS-I disagrees or also wants to use that land for their requirements or to allow another organization to use it? Are only facilities

physically within the airfield under the SAA's control or are operations and maintenance facilities along the airfield periphery also included? Does the SAA's control stop at the airfield security fence, if there is one, or does it also include "imaginary" surfaces such as runway clear zones or explosives QD arcs? Who determines where the line of demarcation between the SAA and BOS-I is drawn? From these questions, one can clearly see the potential sources of conflict between these two entities with similar responsibilities, but different levels of authority, for separate portions of the installation. As with the terms BOS and BOS-I, the SAA is a critical function at deployed airbases and needs to be more clearly defined as a core doctrinal concept. Since SAA deals more with operational control of aircraft and airfields, the most logical place for it to be defined is in JP 3-0, *Joint Operations*, or in JP 3-30, *Command and Control for Joint Air Operations*.

Based on the CENTCOM definition, the SAA's responsibilities can be broken down into the three main areas of managing airfield operations to control aircraft movement, airfield security, and the maintenance and construction of airfield infrastructure and facilities. Installation engineering functions would obviously pertain to the maintenance and construction of airfield infrastructure and facilities. These requirements range from normal facilities and utility systems found throughout the rest of the base, to unique airfield systems such as airfield pavements, airfield lighting, and aircraft arresting systems, to aircraft fire and rescue services. The SAA engineering functions related to normal facilities and utility systems are identical to those general engineering functions associated with the BOS-I duties previously discussed. However, the airfield unique systems require specialized training and expertise that is not resident in all general engineering type units within the Services. In other words, an engineering unit capable of performing the unique aspects required of the SAA is also likely capable of

performing the general engineering functions for the rest of the base. However, an engineering unit qualified to perform BOS-I engineering functions may not have the specialized capabilities to perform the airfield engineering functions. This distinction is critical when determining whether a particular organization is suited to performing the functions required of the BOS-I, SAA, or both at a given operating location.

As the previous discussion illustrates, the terms BOS-I and SAA are largely neglected in joint doctrine. CENTCOM's regulation on the roles and responsibilities of the two entities is the primary guidance available on the subjects. Even though the CENTCOM guidance is somewhat vague, it offers insight into what engineering capabilities are required to perform both the BOS-I and SAA functions. While both functions are similar from an engineering perspective, the SAA requires additional specialized engineer capabilities not required to perform BOS-I duties. To determine the suitability of Army and Air Force engineering units for performing these missions, one needs to examine how the Services are organized to provide installation support functions at home station and deployed locations.

ARMY AND AIR FORCE INSTALLATION SUPPORT STRUCTURE

How the Army and Air Force are organized to provide installation support both at home stations and deployed locations offers some insight into the capabilities of each service to provide BOS-I and SAA services at deployed bases. This section examines how both the Army and Air Force are structured to provide installation support, especially with respect to engineering functions. First home station organizational structures are looked at followed by deployed installation support structures.

Army Home Installation Organizational Structures

The Army recently underwent a major transformation in the way it manages its home station garrisons. On October 24, 2006, the Army stood up its Installation Management Command (IMCOM) “...to reduce bureaucracy, apply a uniform business structure to manage U.S. Army installations, sustain the environment and enhance the well-being of the military community.”⁷ One of the major initiatives of IMCOM was to implement a standard garrison organization (SGO) at all installations so that functions, names, processes, and standards would be common no matter where a soldier and their families were stationed. Figure 2 in Appendix A shows the SGO organizational structure.

Under this model, the garrison commander (GC) is responsible for all aspects of running the installation and providing BOS services to all units on the post. The GC is typically an O-6 and therefore likely not the most senior officer on the post. However, the GC does not fall under the chain of command of the mission element (for example a corps/division/brigade HQ on post) commander. Instead, the GC works for IMCOM and reports to an IMCOM regional director while the mission elements on post are tenant units supported by the SGO.⁸ This structure allows IMCOM to achieve its stated goal of standardization of base support throughout the Army and achieve efficiencies for support services across the entire Army. However, it divorces the BOS function from the mission commanders that the base supports. This could potentially pose a problem if the support priorities of the mission commander don’t align with the GC’s priorities.

Within the new SGO, the directorate of public works (DPW) is where the majority of the general engineering functions for the installation reside. The DPW is responsible for facility/utility operations and maintenance, environmental, housing, engineering, and real estate master planning.⁹ Civilian personnel almost exclusively man the DPWs.¹⁰ By manning their

home garrison engineering units in this manner, the Army is left with no military expertise in managing day to day installation general engineering functions. While this is understandable given the Army's focus on mobility and maneuver while engaged in contingency operations, it has the potential to create problems when the Army is forced to operate from fixed bases for extended periods such as during stabilization operations.

Several of the general engineering functions listed in Figure 1 reside in other garrison directorates. For example, fire and emergency services resides in the Emergency Services Directorate along with military police and disaster preparedness falls under the Plans, Training, Mobilization, & Security Directorate.¹¹ The general engineering function of explosive ordnance disposal (EOD) is not resident within the SGO. All CONUS EOD units fall under the 20th Support Command. If an EOD unit is stationed on an Army post, they are tasked to provide EOD support to that installation. If no EOD unit is on post, the closest EOD unit would be responsible to support the installation.¹² Therefore, within the Army's home station structure, general installation engineering functions are performed by several different organizations.

Air Force Home Installation Organizational Structure

The most common home station Air Force organization is based on a standard wing, as defined in AFI 38-101, and is usually built around a flying mission that provides a combat capability.¹³ Figure 3 in Appendix A shows the standard wing organizational chart. The standard wing is made up of the wing staff and four separate functional groups. The operations and maintenance groups are composed of the operational flying units and maintenance functions required to support the mission aircraft while the medical group provides medical services for all personnel assigned to the base. The mission support group (MSG) is the primary organization

responsible for the delivery of most BOS functions to all units, including tenant units not part of the wing, on the installation. Some other BOS functions such as comptroller, public affairs, safety, staff judge advocate, chaplain, equal opportunity, and inspector general fall under the wing staff which reports directly to the wing commander. Normally the flying wing at a base is the primary mission organization for that particular installation and is also responsible for operating the base. Therefore the wing commander is the single commander responsible for both the mission element and BOS support of all entities on the installation. If one were to compare the Army's SGO to a standard Air Force wing, the installation directorates would roughly equate to squadrons within the MSG and the wing staff would provide similar functions as the installation support offices. The major difference is that the MSG commander and the wing staff agencies all report to the wing commander that is also responsible for the operational mission.

Under the standard wing, the civil engineer squadron (CES) under the MSG is the single unit where all installation general engineering functions reside and is comparable to the Army's DPW. The CES is responsible for facilities/utilities operations and maintenance, engineering, environmental, fire and emergency services, explosive ordinance disposal, housing, disaster preparedness, and CBRNE defense and training. A typical CES is manned by a mixture of military and civilian personnel and is sized according to the scope of the mission and the installation that it supports. For instance, a CES at a mid-sized base may have approximately 240 military personnel and 110 civilian personnel.¹⁴ This mixture of civilian and military personnel allows for continuity and experience of base engineering support through the civilian workforce, while providing a trained and ready military force capable of providing base engineering support in deployed environments. This structure is well-suited for the Air Force

who, unlike the Army, requires fixed installations to project combat power both at home and deployed locations.

DEPLOYED INSTALLATION ORGANIZATIONAL STRUCTURES

Army Deployed Support Structures

Just as the Army has recently transformed the way it organizes its home station installations, it is also transforming the way it presents combat forces to the JFC. The Army is moving away from being centered on large division sized units with fixed organizations assigned to it, to becoming modular and being focused on smaller self-contained brigade sized units that form the basis of larger organizations to be presented to a JFC.¹⁵ The essential building block of the modular Army is the brigade of which there are three main types: brigade combat teams (BCTs), support brigades, and functional brigades.¹⁶ The three types of brigade combat teams are heavy, infantry, and stryker. The five types of support brigades provide multifunctional capabilities and include battlefield surveillance, fires, combat aviation, maneuver enhancement, and sustainment. Functional brigades are normally controlled at the theater level and are organized around specific capabilities such as engineer, military police, CBRN, air and missile defense, signal, EOD, medical, and intelligence. The Army then takes various combinations of BCTs, support brigades, and elements of functional brigades and attaches them to a division as required by the JFC based on the given mission.

Since the Army's combat power doesn't rely on fixed installations and is based around maneuver units, Army units typically have some level of organic capabilities to support themselves in the field. However, when the Army deploys a large combat force to an AOR, that force comes with a rather substantial logistics requirement. To manage the flow of logistical

support in a given theater, the Army will normally deploy a theater sustainment command (TSC) to provide the Army component commander, or a JFC, a headquarters responsible for providing logistics support services to units in a given theater.¹⁷ The TSC will likely forward deploy an expeditionary sustainment command (ESC) element to a given area of operations (AO) to provide C2 for logistical operations in that AO. The ESCs organizational structure is identical to that of the TSC but on a smaller scale.¹⁸ Figure 4 in Appendix A shows the composition of a TSC headquarters. This configuration of TSC and ESC headquarters allows these units to control multiple organizations, such as sustainment brigades or other functional units, task organized and attached to them to support a given operation.

When the logistical mission is to provide support to a major deployed installation, the Army would have several options based on their modular structure on how it could provide BOS. Providing BOS during this time could possibly fall to a sustainment brigade or one of its combat sustainment support battalions (CSSBs) depending on the size of the base involved. To provide the C2 element for BOS, the Army normally task a unit to form a “Mayor’s Cell.” This organization is normally set up along the standard S-staff directorates and is responsible for providing common support to all organizations on the camp such as dining facilities, water, infrastructure and facility operations and maintenance, power generation, solid waste removal, morale, welfare, and recreation (MWR), and vehicle operations. As the BOS provider, the mayor’s cell would need to supply these services through either military or contractor forces.

In order to provide BOS services with military personnel, a sustainment brigade, CSSB, or other type of unit tasked would need to have units attached to it with the requisite capabilities to perform these functions. The more common way the Army performs these services at established bases in a mature theater such as Iraq, is through the Logistics Civil Augmentation

Program (LOGCAP). LOGCAP is a standing contract awarded by the Army to provide a full range of logistics support to Army forces during contingency operations. A list of CS and CSS capabilities provided by LOGCAP is shown in Figure 5 in Appendix A. If the Army chooses to provide BOS through the LOGCAP contract, it will still require a mayor's cell to coordinate base support as well as provide contracting officer representative (COR) oversight of the LOGCAP contractor's performance. To effectively monitor a contractor's work, the COR should have some familiarity and expertise within the functional area of the contract they are monitoring.

None of the Army deployed support forces discussed above have any organic engineer support in their organizational structure. Therefore, to provide installation engineering support, the theater engineer brigade would have to attach some of its units to a BOS providing organization or rely on LOGCAP. Like the rest of the Army, the engineer brigades are also undergoing a modular transformation. Instead of having six different types of engineer brigades, the Army has created 11 standardized engineer brigade headquarters capable of providing C2 to multiple task organized engineer battalions.¹⁹ Likewise, the 12 different types of engineer battalions have been reduced to one standard engineer battalion headquarters that is able to provide C2 to multiple different engineer companies.²⁰ The engineer companies are broken into two main groups of either combat companies or construction companies. The different types of combat companies include sapper, mobility augmentation, engineer support, or clearance while the construction companies are horizontal, vertical, or topographic.²¹

In terms of installation engineering functions, the construction engineer companies would most likely to be tasked to support a BOS providing unit due to their vertical and horizontal construction capabilities. However, not all installation engineering functions are resident within the construction companies. Firefighting, CBRNE, disaster preparedness, EOD, and

construction contract management would all have to be provided by other units attached to the BOS provider as construction companies do not contain these functions.²² Personnel from the engineer brigade or battalion headquarters could augment the contract management function. However, the Army's military engineers have very little capability to provide contract management services because civilians in the DPW perform this function at their home stations. The one army engineer unit that does have the expertise to provide contract construction and facilities management expertise required for BOS is the facility engineer group (FEG) but there is only one FEG in the entire Army and it is in the reserve component.²³ Therefore, it may not be immediately available at the start of a contingency to provide DPW-type support due to the time required to mobilize the reserves. The ability for FEG personnel to sustain BOS support over long periods of time could also be limited by restrictions on reserve component mobilizations.

From this discussion on deployed Army installation support, one can see that there is no set pattern or organization that provides BOS at the Army's deployed bases. The new modular nature of Army forces allow it to task organize units by attaching required units to established brigade or battalion C2 structures. While this structure for BOS provides a great deal flexibility, it also has the potential to result in very inefficient application of BOS due to the ad hoc nature of assigning units to this critical task.

Air Force Deployed Support Structures

The Air Force presents forces to the JFC through an Air Expeditionary Task Force (AETF) whose basic building block is the Air Force squadron. Since Air Force Squadrons do not normally contain adequate amounts of organic support structures to operate autonomously, Air Expeditionary Wings (AEWs) or Groups (AEGs) are formed to make up the AETF.

Depending on the size of the mission, the AETF could be comprised of a single AEG or made up of multiple AEWs.²⁴ See Figure 6 in Appendix A for a typical AEW organizational chart.

If the AEW organizational structure looks similar to the typical home station Air Force wing, it is because they are exactly the same. The AEW contains the same wing staff agencies and four functional groups that a home station flying wing contains. This is because the Air Force requires bases to project combat power. The same organizations required to operate a base and support the forces stationed there are required whether in CONUS or at a contingency location. These support units are intimately familiar with their support responsibilities because they provide the same support at their home installations. Like the Army, the Air Force also relies on LOGCAP or AFCAP contractors to provide some deployed support (although not as much as the Army). However, since the Air Force deployed support units have military personnel trained in the various functions performed by the contractors, they are better qualified to monitor and manage the contractor's activities.

One can plainly see that the Army and Air Force are organized very differently to provide home station and deployed installation support. The Army supports its home garrisons with primarily civilian organizations and relies on a flexible system of various types of units (from support units to combat arms units) and contractors to provide deployed installation support. The Air Force supports its home stations with units consisting of military and civilian personnel. The military personnel of these same units also support deployed airbases. The two support systems are designed around the warfighting philosophies of the Services. The Army is more focused on land maneuver warfare and needs to have support forces that can sustain mobile combat forces. The Air Force relies on fixed bases as its power projection platforms and therefore needs support forces trained to be able to operate fixed installations in a deployed

environment. However, the Army's reliance on civilian organizations at home and military personnel deployed can result in inefficient BOS support to the warfighter because the Army's deployed support units do not normally provide BOS support as a core competency. The core competencies of support units can be determined by looking at how they train their personnel. The next section will look at how the two Services train their engineer officers.

ENGINEER OFFICER TRAINING

To understand the Army and Air Force's capability to perform deployed BOS engineering functions one can examine how the Services train their engineer officers. Like most training in the armed services, engineer training generally consists of formal schoolhouse training and the training and experience officers get through the execution of their day-to-day duties and responsibilities (i.e. on the job training or OJT). This section will briefly examine how Army and Air Force engineer officers receive training to prepare them for deployed duties.

Army Engineer Officer Training

There are generally two career paths within the Army engineer branch; combat engineering and the corps of engineers. Combat engineering focuses on the engineering functions required to support combat maneuver forces by performing such missions as mobility, counter-mobility, breaching, demolition, bridging, and general engineering tasks.²⁵ These units are where the vast majority of military engineer personnel are assigned in the Army. By contrast, the corps of engineers performs design and construction of public works, facilities, and infrastructure throughout the United States as well as military installations around the world. This organization primarily consists of civilian personnel and is much more technically oriented towards the design and construction project management of facilities and infrastructure. In order

for an Army officer to serve in the corps of engineers, they must have a technical engineering degree. On the other hand, officers serving in combat engineering units are not required to have an engineering degree since their duties don't require extensive technical engineering expertise.²⁶

Army engineers receive their initial schoolhouse training through the Engineer Basic Officer Leader Course (EBOLC) soon after their commissioning and assignment to the engineer branch. This basic course is approximately 14 weeks long and is designed to teach new engineer officers the basic skills of combat engineering in order to prepare them for their first assignment as an engineer platoon leader.²⁷ Major topics of instruction include bridging, demolitions, assured mobility, geospatial engineering, task force engineering, horizontal and vertical construction, combat engineer or general construction tracked training, digital training, and an end of course field training exercise.²⁸ During the horizontal and vertical construction sessions, Army engineers are exposed to basic general engineering and project management tasks of completing basic horizontal and vertical structures using military forces in a contingency environment. They do not receive any training on developing or laying out contingency bases or airfields nor do they learn contract project management skills.

After completing the basic course and serving several years as an engineer Lieutenant, Army engineer officers go through the Engineer Captain Career Course (ECCC). This course is designed to give engineer officers the advanced skills needed to prepare them to command an engineer company.²⁹ ECCC training again primarily focuses on combat and general engineering tasks required to support contingency operations with additional lessons on tactical planning and doctrine for combat engineer operations.³⁰ Of the many subjects taught over the approximately 5 month course, there are only about four and a half hours dedicated to base camp planning and about two hours for airfield damage repair.³¹ Like the EBOLC, the Army officers receive

extensive training on project management utilizing military engineer personnel during ECCC, but receive no instruction on planning, programming, budgeting, or managing construction work performed by contractors.³²

Air Force Engineer Officer Training

Unlike the Army, the Air Force requires all of its officers to possess an engineering degree from an accredited university if they are to enter the 32E civil engineer (CE) career field.³³ This degree requirement ensures Air Force CE officers have the requisite technical background to be able to perform the typical duties required of Air Force CE officers. Formal school house training in the Air Force consists of the basic civil engineer course and various other continuing education contingency courses such as the contingency engineering and command and contingency engineering courses offered at the Civil Engineer and Services School at Wright-Patterson AFB, Ohio. The schoolhouse also offers many other engineering and management courses focused home station engineering functions, but many of these courses are also useful in a contingency environment since the functions of a CES are the same whether deployed or at home station.

Usually within 6 months of entering the Air Force, CE officers will attend the 7-week Air Force Civil Engineer Basic Course. The course is broken down into two primary phases where the first half introduces the CE officers to the CES structure, basic functions of the various flights within a CES, and how to plan and execute flight programs.³⁴ During this time, students receive their first training on base comprehensive planning. Base comprehensive planning training focuses on the development of Air Force bases by looking at short, mid, and long term goals for the installation and takes into account four main areas including land use constraints

and opportunities, infrastructure, land use and transportation, and capital improvements programs.³⁵ AF engineers also learn how to plan, program for funding, and execute facility and infrastructure contract projects. The technical background required of all CE officers also allows them to perform design reviews as well as doing their own designs when needed.

The second phase of the basic course focuses on contingency engineering skills. The students receive extensive deployment beddown training and practical exercises covering all aspects of deployed airbases such as base layout, force protection, water purification and distribution, wastewater collection and treatment, POL storage and distribution, contingency environmental issues, and airfield unique systems such as lighting, navigation aids, and arresting systems.³⁶ The contingency training phase culminates with a weeklong deployment to the Silver Flag contingency training site at Tyndall AFB, Florida. Here students are given hands on training with contingency equipment sets and then tasked to put their newfound experience to use by planning and executing a contingency force beddown plan.

Home station training in a CES consists of monthly contingency training as well as day-to-day OJT training. During training days, all military personnel in the squadron conduct specialty specific contingency training requirements broken down into various categories with corresponding frequency requirements. Additionally, CE personnel are required to attend refresher training at the Silver Flag contingency site every 30 months. The day-to-day OJT training forms the basis for a CE officers experience and expertise in performing installation engineering functions. Most company grade officers in a CES reside in the programs flight but will also likely fill assignments in the readiness, operations, asset management, and in some cases EOD. While in the programs flight they perform such duties as contract project management, programming, construction inspection, design, and base development. Through

the performance of these duties, CE officers work with every support and operational mission set throughout the base and therefore get a solid understanding of those missions and the various infrastructure requirements needed to support them. This knowledge proves invaluable when CE officers deploy to a contingency environment and need to be able to quickly provide installation engineering support without going through a large learning curve.

The above discussion on Army and Air Force engineer officer training serves to illustrate how differently the services utilize their engineering forces. The Army's engineer training focus is on combat and general engineering tasks. This training ensures Army engineer officers are well prepared to lead engineer units to perform a wide variety of combat and general engineering tasks in support of maneuver forces. However, they gain little to no experience in engineering tasks related to developing, operating, and maintaining bases and airfields. By contrast, the Air Force's engineer training focus is on installation and airfield general engineering tasks to support the generation of combat airpower. This ensures Air Force engineers are prepared to support a variety of missions executed from fixed bases and airfields at both home station and deployed locations. When deciding which service should provide BOS-I and SAA support to deployed airbases, the JFC must consider these distinctions to ensure effective combat support to the joint warfighter. The next section will illustrate the types of problems that can arise when forces are utilized for missions for which they are not well suited.

CASE STUDY: JOINT BASE BALAD, IRAQ

As previously mentioned, what is now known as Joint Base Balad (JBB) used to be called LSA Anaconda by the Army and Balad Airbase by the Air Force. Until recently, the Army was designated by CENTCOM as the BOS-I and the Air Force served as the SAA. That all changed

on 11 November 2008 when BOS-I authority transferred to the Air Force. For the first time at Balad, a single organization now provides all BOS support to both the airfield and the rest of the installation. This section of the paper will examine how BOS-I was provided by the Army and how the Air Force is now providing both BOS-I and SAA. Based on the author's experience and research, the discussion will focus primarily on the timeframe of 2006 to the present day.³⁷

Balad BOS-I Under the Army

In 2006, the Army's 3rd Corps Support Command (COSCOM) commander was the LSA Anaconda installation commander and charged with providing BOS-I responsibilities for the base. At the time, a COSCOM was responsible for providing logistical support to an Army Corps. Under the modularity transformation previously discussed, the COSCOMs were dissolved and their forces used to stand up the new theater and expeditionary sustainment commands (TSCs & ESCs) and sustainment brigades.³⁸ The COSCOM provided BOS-I by establishing a mayor's cell manned by members of the 35th Area Support Group (ASG) of the Missouri National Guard. ASGs no longer exist in the modular Army construct and were broken up to form the new sustainment brigades and brigade support battalions.³⁹ An ASG was a C2 unit that was augmented by various support units that provided base operations at deployed locations.⁴⁰ However, ASGs or the new sustainment brigades or CSSBs are not always used to oversee BOS activities. The last Army unit to perform BOS-I at Balad in 2008 was actually the HHC of the 76th Infantry BCT.⁴¹ The organizational chart for their mayor cell is shown in Figure 7 in Appendix A and represents a typical Army mayor cell C2 structure. Assigning Army non-logistical support units, such as infantry or artillery units, to the role of providing BOS at forward operating bases is fairly common in a deployed environment for the Army.⁴²

As Balad was such an established base, the Army relied almost exclusively on the LOGCAP contractor Kellogg, Brown, and Root (KBR) to provide all BOS to the installation. KBR provided all the field services listed in Figure 5 as well as supply, engineering and construction, power generation and distribution, and transportation (bus service) throughout the base. Since KBR provided the manpower in performing the various BOS functions, a great deal of the mayor cell's time was dedicated to processing requests for KBR support and overseeing execution of the contractor's work by serving as the contracting officer's representative (COR).

The problem was that often the mayor cell personnel did not have enough personnel or the requisite expertise to know whether KBR was completing their task adequately and that the government was getting the service it was paying for. For instance, in 2006 the mayor cell "engineer" was an Army O-5 who had an O-3 and an E-9 working for him. None of the three were engineers by training and instead were members of combat arms branches. Three people is hardly enough manpower to adequately oversee all the activities of a contractor performing a vast array of installation engineering functions on a base covering approximately 10 square miles. This is especially true when those three individuals do not have a background or training in engineering or construction activities. Invariably things are missed and the contractor's performance assessment, which KBR prepares themselves, merely gets rubber stamped by the COR because they can't legitimately question what the contractor claims to have done.⁴³ Lack of proper oversight of contractor activities can also lead to tragic results. At least 231 personnel in Iraq received electrical shocks from September 2006 to July 2008 with about 18 deaths since 2003 and many of these cases are being attributed to improper electrical work performed by contractors.⁴⁴ This is not intended to implicate that CORs responsible for monitoring these contractors are somehow at fault for these tragedies. However, if the Army, who has BOS-I

responsibility at nearly all installations in Iraq, used personnel trained in electrical work in sufficient numbers to oversee these activities, a pattern of poor workmanship and electrical safety hazards may have been identified early on and the contractor forced to fix the deficiencies.

Another problem with this organizational construct was that the mayor cell had responsibility for all the BOS functions, but it did not have authority over the vast number of units on base nor did it have any organic capability to perform support tasks that may have been outside the purview of the LOGCAP contract. As Figure 7 shows, the only unit TACON to the mayor cell was a field artillery battalion that was responsible for base security and provost marshal duties.⁴⁵ The mayor cell would also have control of a labor pool contributed to by all units on base for the performance of BOS duties. Some of these general “troop to task” activities included working in the dining facilities, escorting local national contractors on base, and manning security points.

This lack of organic or attached BOS manpower meant the mayor cell was either completely reliant on KBR, or it had to beg other units on base for support. For example, if the mayor cell engineer needed something even as simple as pouring a concrete pad, they had to go to KBR. For KBR to do construction work, a task order had to be cut which required funding. The Army’s funding process required spend plans to be submitted on a monthly basis for the following month. So the engineer would have to wait until spend plans were due and then, if the funding was approved, wait until the money arrived the next month to award a contract. Thus the pad could take 1-2 months, assuming the funding was approved by MNC-I, depending on when in the spend plan cycle the requirement arose. If the mission required a quicker response, they would have to go ask the engineering brigade HQ located on base for support. The engineer brigade would assist if they had personnel available but they were often busy completing projects

around the country. If they couldn't help, the mayor cell would sometimes ask the Air Force ECES if they could do the work. As this example shows, not having organic or attached capabilities makes the BOS-I's job difficult for even the smallest installation engineering tasks and forces an overreliance on the LOGCAP contractor.

As the preceding paragraphs show, the Army's method for delivering BOS-I is somewhat ad hoc in nature because it may be provided by a logistical support type unit or by a combat arms unit. Even if the BOS-I is a support unit, its personnel responsible for installation engineering functions will often not have the requisite expertise to adequately manage contractor operations. Furthermore, without organic or attached units capable of providing BOS, the BOS-I is overly reliant on the LOGCAP contractor and is unable to quickly perform even the most simple of tasks. This structure puts those personnel charged with BOS-I responsibilities in an untenable situation and results in inefficient support to the warfighting units stationed at the base.

Balad BOS-I Under the Air Force

When the Air Force took over BOS-I responsibilities from the Army in November 2008, the task fell to the 332 Expeditionary Mission Support Group (EMSG) which is a subordinate unit of the 332 Air Expeditionary Wing (AEW). The brigadier general in charge of the AEW became the installation commander and served as both the BOS-I and SAA. The Colonel commanding the EMSG took on the role of the mayor under the Army's construct. Nearly all functions previously performed by the Army's mayor cell transferred to the EMSG and some of the wing staff agencies. The only mayor cell functions that didn't transfer dealt with Army specific functions such as the Army motor pool and human resources sections. Since the internal and external base security mission required an increase of approximately 520 Air Force security

forces personnel, the security forces squadron (SFS) was removed from the EMSG to create a new expeditionary security forces group (ESFG).⁴⁶ The one main function that did not transfer to the Air Force was the role of communications integrator. For some reason the Army specifically did not want this function to transfer. It could have possibly been related to inherent differences between Army and Air Force computer networks.⁴⁷ Figure 8 in Appendix A shows the AEW BOS-I organizational structure and the location of mayor cell functions in the AEW.

As Figure 8 shows, the EMSG had all the standard support squadrons found in a typical Air Force support group discussed previously. This made the transfer of BOS-I responsibilities relatively easy due to the standard Air Force base support organizational structure. With the exception of creating the ESFG to accommodate the large increase in security personnel, the EMSG was able to assume BOS-I duties using its existing structure. The only change to the various EMSG squadrons was an increase in personnel required to take on the additional workload of supporting the entire installation instead of just the units operating on the airfield. For instance, the number of facilities the ECES was responsible for went from about 1,000 as the SAA, to about 8,000 as the BOS-I and SAA. The ECES accomplished this increased workload with an increase of only 94 personnel. That number will even be reduced to approximately 54 in 2009 because of efficiencies the unit is discovering as its BOS-I experience grows.⁴⁸

The EMSG at Balad is also a standard Air Force support group in that it is comprised entirely of support professionals that have spent their entire careers providing BOS at home station and deployed locations. It is not an ad hoc organization put together using non-support personnel. Even though a mission support group is part of a host wing and is primarily responsible for support of the wing's mission, mission support forces are also accustomed to providing support for all units on the installation regardless of their parent organization or

service. In fact, the EMSG was already supporting all Army, Navy, and SOF aviation forces operating on the airfield even before it took on the BOS-I role for the rest of the base. In terms of installation engineering, this meant that the ECES would plan and execute construction work for the Army's combat aviation brigade just as if the request came from one of the 332 AEW flying units. This tradition of support and experience allowed the 332 EMSG to transition seamlessly from solely providing SAA support to providing BOS-I support for the entire base. Other than the airfield unique support aspects, providing BOS-I was just a matter of executing their same support missions they were already accomplishing on a larger scale.

While hard data is not yet available to quantify the differences, early indications are that the Air Force is able to perform the BOS-I role much cheaper, more efficiently, and at a higher quality than the Army. Much of the cost savings is because the Air Force is not forced to rely exclusively on KBR, and the premium cost that comes with using them, for all aspects of support.⁴⁹ Since the EMSG has organic manpower in its various support units, it is able to provide the support itself instead of having to rely on the contractor. This is especially useful for emerging requirements that can't wait for the time it takes the funding and contracting bureaucracy to work. The other major savings the Air Force is realizing is due to better oversight of KBR activities. Since the Air Force is using organic functional experts to serve as CORs, they are better able to hold the contractor to the performance standards dictated in the contract.⁵⁰ Instead of blindly agreeing to the inflated performance evaluations the contractor was submitting, the Air Force functional experts are able to document contractor shortfalls and thus recommend smaller award fee ratings resulting in savings to the government.

In addition to cost savings, the Air Force has been able to provide more installation engineering support to base units than what they were able to receive under the Army system.

Previously, Army units with a construction requirement had to submit them for execution by the theater engineer brigade or to the mayor cell for KBR execution. The result was often a lengthy delay in getting projects done due to the engineer brigade working throughout Iraq or the long wait for KBR to perform the work. With the ECES organic construction and contract management capabilities, work is able to be executed much more quickly for base customers. Each quarter the EMSG holds a facilities board with the various O-6 commands around the base. The senior leaders discuss the projects in the system at this meeting units are able to advocate for their highest priority work. The result is a prioritized list of approximately 50 projects the ECES will work for that quarter. Of the 50 projects, the Army typically receives about 25, the Air Force 15, and other units on base get about 10.⁵¹ This is far better support than base customers used to get and as a result, the Army "...is ecstatic about the Air Force now running the base!"⁵²

The discussion in the preceding paragraphs shows that the Air Force easily assimilated into its new role as the BOS-I at Balad due to its existing standardized base support structure. The combination of resident functional expertise to manage and monitor LOGCAP, organic base support manpower, and the experience that comes with providing base support as a core competency allows the Air Force to provide more effective and efficient BOS to all Balad units.

RECOMMENDATIONS

The preceding discussion has shown that the most prevalent form of providing BOS-I at CENTCOM airfields, Army as BOS-I and Air Force as SAA, is suboptimal at best. The following recommendations are provided as a means to improve delivery of BOS at deployed locations. These recommendations should benefit both Services at airbases as well as at Army

bases without an airfield. Ultimately, the goal of providing better BOS is to provide the best support possible to enable the warfighter to carry out their assigned missions.

1. The Air Force should be designated the BOS-I at deployed locations where major Air Force fixed wing flying operations are taking place.

Establishing operating locations and providing installation support with military personnel is a core competency of the Air Force. This is a result of the Air Force's dependence on its airbases to serve as power projection platforms enabling it to deliver combat airpower anywhere on the globe. Because of its dependence on fixed installations, the Air Force as a service truly appreciates the force multiplying power of its installations and therefore places a much greater emphasis on supporting them relative to the other Services. As such, the Air Force is better suited than the Army to provide consistent, effective, and efficient BOS with its military personnel at deployed airbases. The Army's logistical culture and support focus in a contingency is on the maneuver forces and therefore does not put much importance on fixed bases or the management of them. The Army's practice of placing infantry and artillery units and personnel in charge of providing BOS is evidence of the service's attitude that base support is an afterthought that can be performed by anyone.

The potential drain on Air Force manpower that would be required to take on the BOS-I role at all major deployed airbases is a potential limiting factor in implementing this recommendation. Due to their high demand, Air Force engineers are already outside the normal AEF cycle that has most Airmen deploying for 120 days every 20 months. Air Force engineers are instead on a 1:2 dwell ratio and normally serve 6-month deployments with an intervening 12-month period at home. Taking on BOS-I at the three other main airbases where the Army has BOS-I (Bagram and Kandahar in Afghanistan and Baghdad International Airport in Iraq) would

almost certainly push engineers beyond the 1:2 dwell ratio they are currently in. For example, the Air Force had to add a total of about 153 positions (not counting the ESFG increase) to the approximately 1,000 personnel in the EMSG at Balad when it took on the BOS-I role. About 94 of that increase were engineers. However, the Bagram EMSG is only about 550 personnel and would need to nearly double to take on the BOS-I role.⁵³ The Air Force engineer career field could not take on this increased manpower requirement without shedding deployment workload somewhere else. One potential source to free up Air Force engineers are taskings the Air Force is filling for other Services, or Joint Expeditionary Taskings (JET).⁵⁴ The Air Force currently has approximately 1,082 engineers (officer and enlisted) filling JET roles, which is 39% of the 2,777 total Air Force engineers deployed to the CENTCOM AOR.⁵⁵ If the Air Force could shed those taskings, the engineer career field may be able to support taking on the additional BOS-I locations. Taking BOS-I from the Army could also free up soldiers at those locations who could then be utilized for other Army missions.

2. The Air Force should advocate for a change in joint doctrine that states the Air Force is the preferred service to perform SAA and BOS-I functions at major deployed airbases.

This recommendation is a corollary to the first one. In order for the Air Force to be the BOS-I of choice at deployed airbases, it must get the concept into joint doctrine. The best way to get it into joint doctrine would be to first make it part of Air Force doctrine. A new Air Force Doctrine Document (AFDD) 2-4.4, *Airbase Establishment and Mission Generation*, is currently in draft and represents an excellent opportunity to make this change. AFDD 2-4.4 is formally introducing the concept of SAA and BOS-I into Air Force doctrine and offers the Air Force the opportunity to make its case for why it should have BOS-I at deployed airbases. For the most part, the current draft of 2-4.4 restates the CENTCOM BOS-I and SAA definitions. However,

one difference is the very first line of the BOS-I section which reads “The Service Component with the preponderance of forces should provide the BOS-I.”⁵⁶ The BOS-I shouldn’t merely be determined by who has the most forces on an airbase. The service that is best postured to accomplish the mission at that time should provide BOS-I. A better opening line for BOS-I would be “The JFC should normally select the BOS-I at an airbase from the service component with the most capable base operations forces, the ability to command and control forces, and the assets to support the base operations support mission.” This statement is similar the one found in the SAA section which postulates that the SAA should be the service best suited to perform the mission. This may not always mean the Air Force is the BOS-I as there may be times when Air Force forces aren’t immediately available to provide BOS-I services. However, most of the time the Air Force would be more capable and have the most suitable assets to provide BOS.

Current joint doctrine could also be tweaked to designate the Air Force as the BOS-I at deployed airbases. JP 3-34, *Joint Engineer Operations*, specifically states:

Air Force Engineers would be the primary units considered and take the lead role to open, establish, and sustain airfield operations that will support high-performance aircraft, or at locations where primarily Air Force aircraft will operate because of a specialized expertise in airfield operations. Another service may provide base operating support engineers.⁵⁷

The last line should be changed to read “Air Force Engineers should also be the primary units considered for base operating support due to the unique aspects of providing support on an airfield. However, another service may provide BOS engineers if necessary.” Again, this simple change indicates the Air Force is the provider of choice for airfield and BOS engineer support but leaves room to use other Services as dictated by conditions on the ground.

3. The number of Air Force engineers on Geographic Combatant Commander (GCC) staffs should be increased.

Air Force engineers are underrepresented on GCC staffs and therefore unique airfield base operating support aspects are neglected in GCC planning. For instance, of the 8 billets on the CENTCOM engineer staff, only one is for an Air Force O-4. The Marines and Navy each have one O-4 and the Army has an O-6, three O-5s, and an E-6.⁵⁸ There are also 15 rotational (staff augmentation for 1 year or less) engineer slots on the CENTCOM staff. Only 2 of the 15 are Air Force Engineers and neither of them is an O-5 or an O-6. The Army has 7 (one is an O-5), the Navy has 5 (including an O-5 and O-6), and the Marines have one (O-4).⁵⁹ A larger representation of AF engineers, and filling leadership positions, on the CENTCOM staff could help avoid some of the early mistakes made by Army forces when they first moved into Balad in May 2003. These planners could ensure that airfield planning considerations be taken into account by any seizure force before they establish operations at an airbase. They could also ensure GCC plans account for utilizing Air Force expertise as soon as an airfield is seized in order to be able to quickly generate airpower from the installation. Early decisions such as using aircraft shelters for non-airfield functions, siting logistical facilities without regard to clear zones and QD arcs, and not leaving sufficient space around the airfield for expansion of air operations are a few examples where Air Force engineer planning expertise could have averted future problems. These decisions by a BOS-I unfamiliar with airfield ops had lasting impacts that still constrain airpower employment on Balad today.⁶⁰

4. Army engineers need basic training on airfield planning considerations.

As mentioned in the Army engineer training section, Army engineers receive very little training on installation engineering functions and none on the unique aspects of airfields. Air Force engineers may not always be available at initial stages following airfield seizure to

perform airfield planning functions. A rudimentary understanding of basic airfield operations fundamentals could help Army engineers avoid early mistakes such as those made at Balad.

5. The Army needs to develop some organic competency in operating deployed installations and reduce their reliance on LOGCAP.

The Army does not currently possess military personnel trained in providing efficient base operating support because civilians almost exclusively run their home garrison support organizations. This is especially true with respect to installation engineering tasks which encompass much of the BOS functions in a deployed environment. The Army does not have the resident expertise in contract project management, facilities management, and base development and operations. While they possess impressive construction capabilities, they need experience in the other areas to provide effective BOS. The Army could remedy this situation by rotating its engineer officers through assignments within home station DPW units in order to gain experience in installation engineering functions. While serving a tour in a DPW will not make them experts in BOS, it will at least expose them to the intricacies of providing BOS so they aren't exposed to it for the first time in a combat zone. This exposure to BOS will help the Army provide more efficient and effective BOS support at deployed locations.

CONCLUSION

The issue of providing effective BOS-I and SAA support at deployed installations is not a new one. As early as spring of 2002, Air Mobility Command raised concerns about "substandard" BOS support being provided by other Services at deployed locations.⁶¹ Yet the problem still persists today over seven years later and results in inefficient BOS for the joint warfighter. This is because the Army is not organized or trained adequately to provide BOS at deployed bases with major fixed-wing operations. Moreover, one could argue, why should they

be? The Army's logistical focus in a contingency environment is supporting the combat maneuver forces, not providing BOS to deployed airbases. On the other hand, the Air Force has units organized and trained specifically for providing BOS support to home station and deployed bases because the Air Force relies on fixed installations to project combat power. The solution is to make the Air Force responsible for both BOS-I and SAA functions at major airbases in the CENTCOM AOR. To help with this distinction, making the Air Force the BOS provider of choice at deployed airbases should be advocated by the Air Force for inclusion in joint doctrine. Since this may not always be possible, the Army should also provide basic training on airbase development to its engineers as well as developing organic military capabilities to specifically provide BOS support. This would give the Army increased capability of providing BOS-I at airbases if needed as well as increase their ability to provide BOS support at their other deployed locations without airfields.

Stability, security, transition, and reconstruction (SSTR) missions are becoming increasingly more important to DoD. In fact DoD Directive 3000.05 states stability operations "shall be given priority comparable to combat operations."⁶² SSTR operations require a prolonged presence in a theater which must be sustained. Forces performing SSTR missions will therefore require fixed installations from which to operate. Providing efficient and effective BOS at these installations will play a critical role in ensuring the successful outcome of an SSTR operation. As the United States surges additional forces into Afghanistan to conduct SSTR, those forces will require additional airbases to operate. The Air Force needs to avoid repeating past mistakes and advocate for BOS-I responsibilities at these deployed airbases.

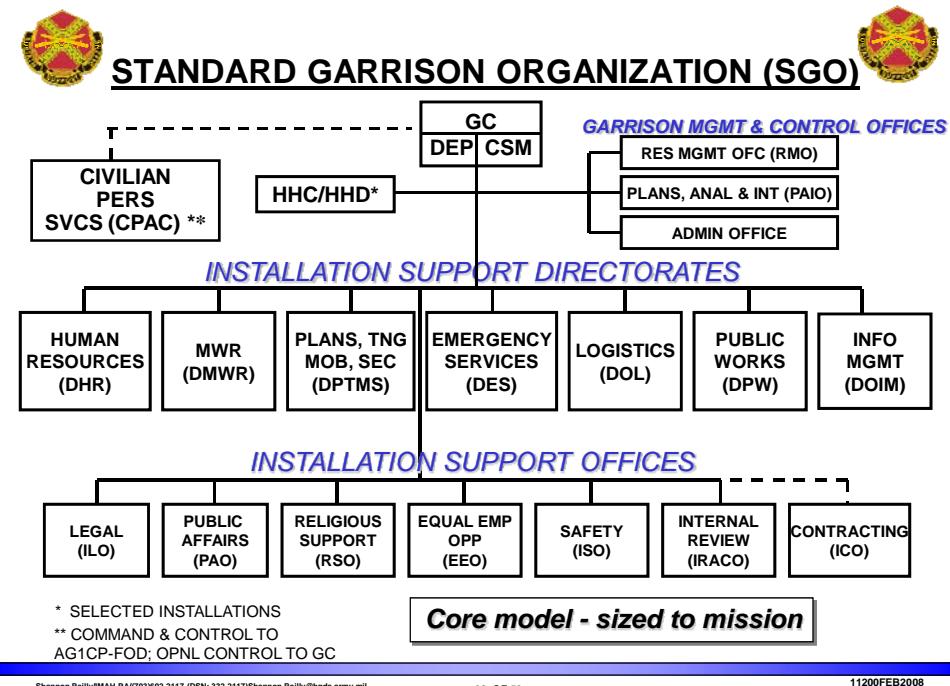
APPENDIX A

GENERAL ENGINEERING CAPABILITIES AND ACTIVITIES

- **FACILITIES.** Construction, repair, modification, maintenance, and operation of facilities (often related to lines of communications, bases, aerial ports of departure/seaports of departure, infrastructure, force protection, or camouflage, concealment, and deception). Examples include:
 - Roads
 - Airfields
 - Bridges
 - Bases and camps (including airbases, expeditionary base camps, etc.)
 - Buildings
 - Seaports
 - Utility systems
- **SPECIALIZED SUPPORT.** Examples include:
 - Fire and Emergency Services
 - Explosive Hazard Disposal (including explosive ordnance disposal)
 - Chemical, biological, radiological, nuclear, and high-yield explosives defense
 - Civil-military operations
 - Construction contracting, engineering support contracting, and engineering technical support
 - Facilities engineering and management
 - Water-well drilling
 - Concrete and asphalt production and quarry operations
 - Power generation and distribution support
 - Environmental support operations
 - Real estate acquisition and management
 - Airfield damage repair
 - Support to joint logistics over-the-shore
 - Disaster preparation and consequence management

Figure 1: General Engineering Capabilities as defined in JP 3-34

(Reprinted from Joint Publication 3-34, Joint Engineer Operations, 12 February 2007: IV-6)



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Figure 2: Army's Standard Garrison Organization
 (Reprinted from "IMCOM 101 Briefing, March 2008," slide 32,
<https://www.us.army.mil/suite/doc/9808521>, accessed 3 February 2009)

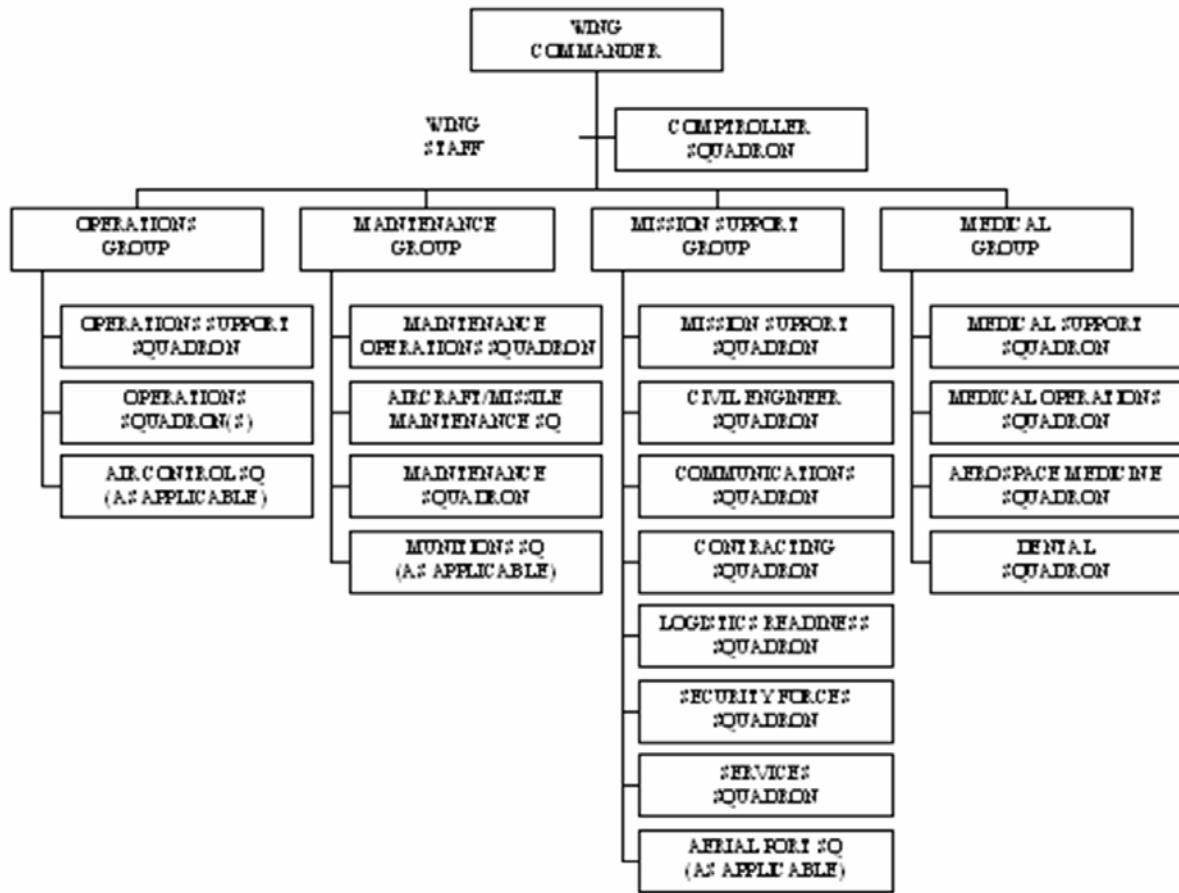


Figure 3: Standard Air Force Wing
 (Reprinted from AFI 38-101, *Manpower and Organization*, 16)

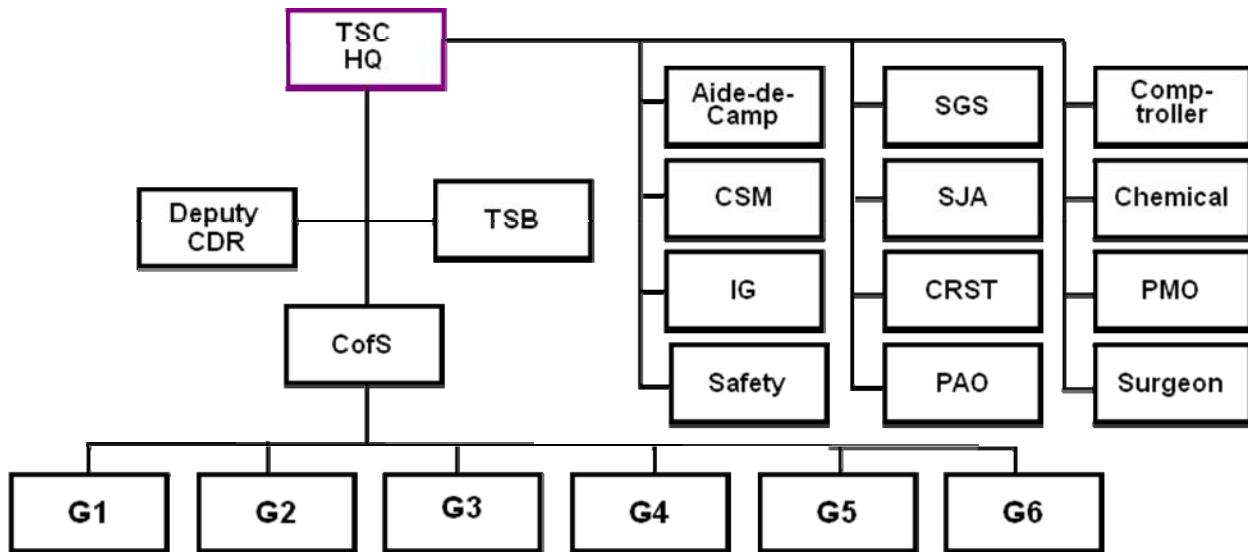


Figure 4: TSC and ESC Headquarters Organization

(Reprinted from “Modular Force Overview OPD” presentation, slide 32,
<https://www.us.army.mil/suite/doc/4244132>, accessed 7 February 2009)

SUPPLY OPERATIONS	FIELD SERVICES	OTHER OPNS & SVCS
Class I: Rations & Water	Laundry & Bath	Maintenance (Gnd, Air, Msl)
Class II: Organizational Clothing, Equipment, & Admin Supplies	Morale, Welfare, & Recreation	Transportation (Includes APOD/SPOD Operation)
Class III: POL – Bulk & Package	Clothing Repair	Medical Services
Class IV: Construction Materials	Food Service	Engineering & Construction
Class V: Ammunition	Mortuary Affairs	Signal
Class VI: Personal Demand Items	Sanitation	Retrograde
Class VII: Major End Items	Billeting	Pwr Generation & Distribution
Class VIII: Medical Supplies	Facilities Management	STAMIS Operations
Class IX: Repair Parts	Clothing Exchange	Physical Security
	Information Management	Force Provider Module Ops
	Personnel Support	Legal Services
		Weapon Systems Training

Figure 5: LOGCAP Support Services

(Reprinted from LTC Steven G. Woods, “Logistics Civil Augmentation Program: What is the Status Today,” 4)

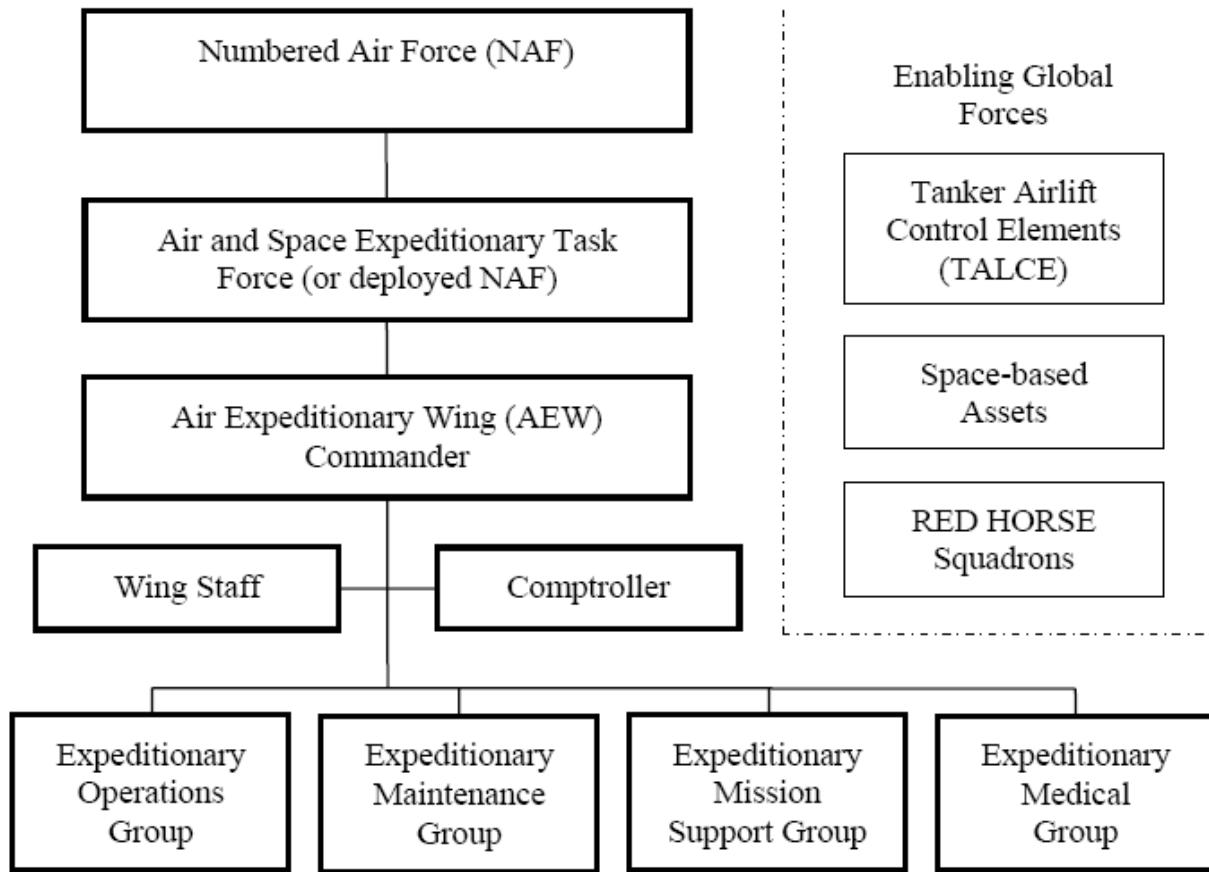


Figure 6: Air Expeditionary Wing Organizational Structure

(Reprinted from Maj David S. Vaughn, “Defining Base Operating Support and Airfield Operating Support,” 57)

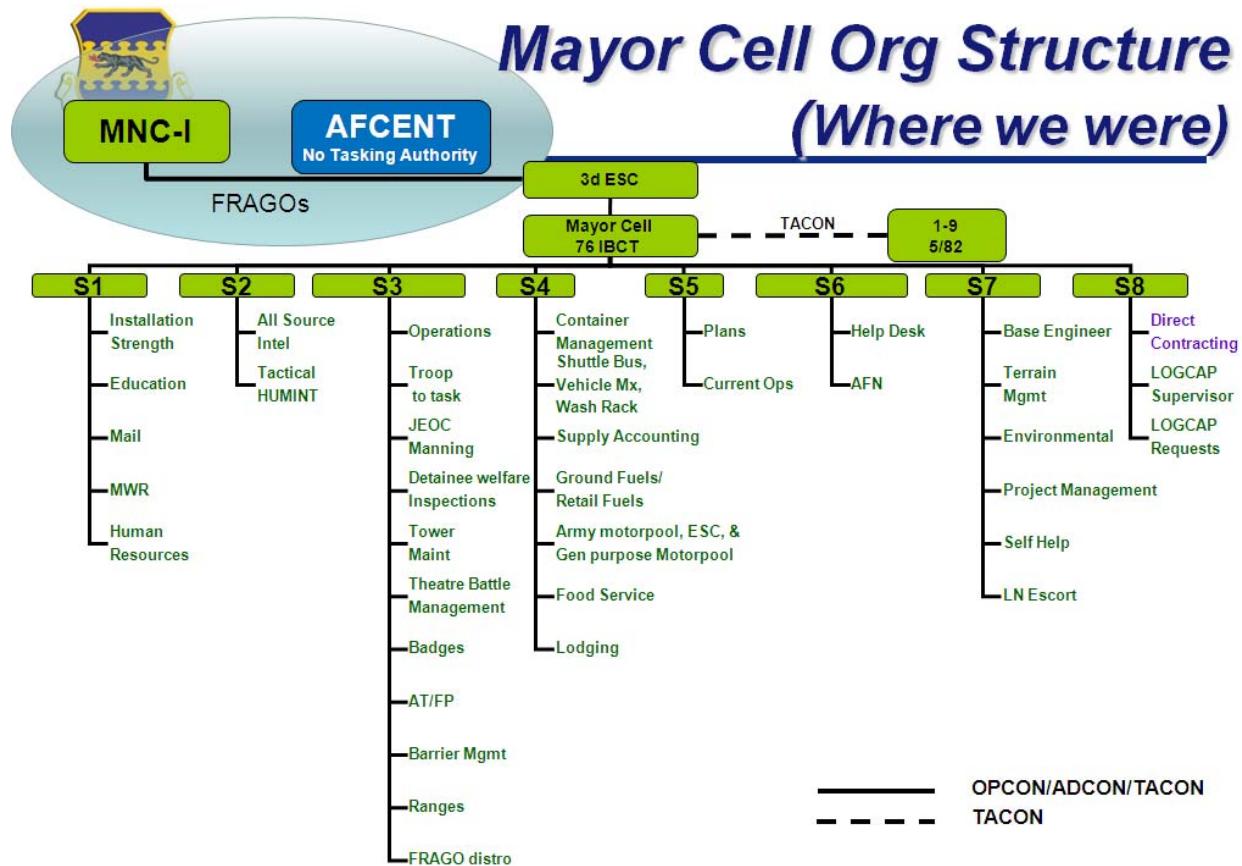


Figure 7: Typical Major Cell Organizational Chart and Responsibilities
 (Reprinted from “332 EMSG Major Cell organizational transition slide show,” slide 1, to the author e-mail, 8 February 2009)

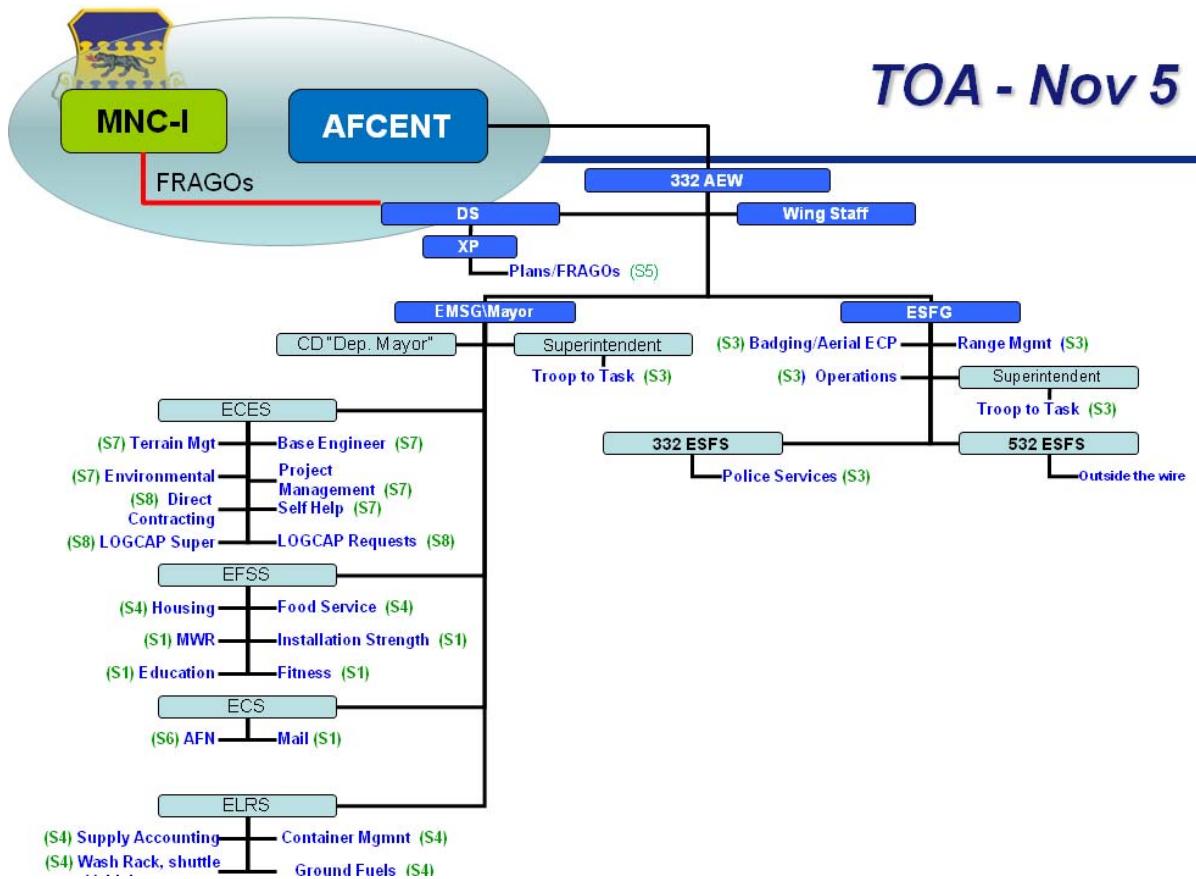


Figure 8: 332 AEW BOS-I Organizational Structure

(Reprinted from “332 EMSG Mayor Cell organizational transition slide show,” slide 3, to the author e-mail, 8 February 2009)

NOTES

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

¹ USCENTCOM Reg 415-1, *The Sand Book*, 3-3.

² Former USAF deployed ECES squadron commander #1, interview by the author, 24 Oct 08

³ Kelly Kennedy, “Harmless or Hazardous?” *Air Force Times*, 3 November 2008.

⁴ Former USAF deployed ECES squadron commander #2, interview by the author, 25 Nov 2008.

⁵ USCENTCOM Reg 415-1, *The Sand Book*, 3-3.

⁶ USCENTCOM Reg 415-1, *The Sand Book*, 3-3.

⁷ Installation Management Command Website, “History of IMCOM,”
<http://www.imcom.army.mil/site/about/history.asp> (accessed 3 February 2009).

⁸ Army Logistics Major, in discussion with the author, 3 February 2009.

⁹ “Enclosure 5 SGO Official Structure, 12 April 2007,” slide 7,
<https://www.us.army.mil/suite/doc/7646069>, (accessed 3 February 2009).

¹⁰ Army Engineer Major, interview with the author, 2 February 2009.

¹¹ Ibid.

¹² Army EOD Major, in discussion with the author, 6 February 2009.

¹³ AFI 38-101, *Manpower and Organization*, 16.

¹⁴ Based on author’s experience as Chief of Operations of 1st Special Operations Civil Engineer Squadron at Hurlburt Field, Florida.

¹⁵ JF 521 Lecture, 26 September 2008, Slide 25.

¹⁶ FM 3-0, *Operations*, C-5.

¹⁷ “Logistics Transformation” presentation, slide 8, <https://www.us.army.mil/suite/doc/5858853>, (accessed 7 February 2009).

¹⁸ “Theater Sustainment Command and Control” presentation, slide 21, <https://www.us.army.mil/suite/doc/14608837>, (accessed 7 Feb 2009).

¹⁹ “The Future Engineer Force” presentation, slide 3, to the author, e-mail.

²⁰ Ibid, slide 4.

²¹ Ibid, slide 2.

²² Army Engineering Major, in discussion with the author, 2 February 2009.

²³ Ibid, C-6

²⁴ AFDD 2, *Operations and Organization*, 3 April 2007, 46.

²⁵ Army Engineering Major, in discussion with the author, 2 February 2009.

²⁶ Ibid.

²⁷ “Engineer Basic Officer Leadership Course Program of Instruction,” pg 2-1, e-mail to the author, 12 March 2009.

²⁸ Engineer School Knowledge Network, “BOLC III Overview” presentation, <https://www.us.army.mil/suite/portal/index.jsp>, (accessed 11 March 09).

²⁹ Army Engineering Major, in discussion with the author, 2 February 2009.

³⁰ Engineer School Knowledge Network, “ECCC 01-09 Training Schedule,” <https://www.us.army.mil/suite/portal/index.jsp>, (accessed 11 March 09).

³¹ Ibid.

³² Army Engineering Major, in discussion with the author, 27 March 2009.

³³ Air Force Officer Classification Directory, 31 July 2007, 81.

³⁴ Civil Engineer and Services School Website, “WMGT 101 Air Force Civil Engineer Basic Course Description,” http://www.afit.edu/cess/Course_Desc.cfm?p=WMGT%20101, (accessed 8 February 2009).

³⁵ AFI 32-7062, *Air Force Comprehensive Planning*, 1 October 1997, 5.

³⁶ AFIT Instructor, “WMGT 101 Air Force Civil Engineer Basic Course Schedule,” to the author e-mail, 5 February 2009.

³⁷ Author served as 332 ECES Engineering Flight Commander at Balad AB, Iraq from 8 May 2006 to 30 Sep 2006.

³⁸ “Modular Force Overview OPD” presentation, slide 32,
<https://www.us.army.mil/suite/doc/4244132>, (accessed 7 February 2009).

³⁹ Ibid, slide 9.

⁴⁰ FM 54-40, *Area Support Group*, 2-6.

⁴¹ 332 ECES officer, in telephone discussion with author, 5 February 2009.

⁴² Army Logistics Majors, in discussion with author, 6 February 2009.

⁴³ LOGCAP is a “cost plus award fee” contract meaning the government reimburses the contractor for the costs the contractor incurs in addition to paying an award fee. The size of the award fee is usually based on performance ratings that the COR gives the contractor on a monthly or quarterly basis.

⁴⁴ Scott Bronstein and Abbie Boudreau, “Electric shocks came often at U.S. bases in Iraq, report finds,” CNN.com, 29 January 2009,
<http://www.cnn.com/2009/US/01/29/kbr.electrical/index.html> (accessed 9 February 2009).

⁴⁵ 332 ECES officer, in telephone discussion with author, 8 February 2009.

⁴⁶ 332 EMSG officer, in telephone discussion with author, 5 February 2009.

⁴⁷ Ibid.

⁴⁸ 332 EMSG officer, in telephone discussion with author, 5 February 2009.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Civil Engineer O-6, telephone discussion with the author, 5 February 2009.

⁵⁴ Until recently directed by the CSAF, JETs were referred to as “in lieu of” taskings since Air Force personnel were deploying “in lieu of” Army personnel.

⁵⁵ “Deployed AFSC Breakout Feb 09,” to the author e-mail, 11 February 2009.

⁵⁶ AFDD 2-4.4 DRAFT, *Airbase Establishment and Mission Generation*, 10.

⁵⁷ JP 3-34, *Joint Engineer Operations*, IV-23.

⁵⁸ CENTCOM J4-E personnel, to the author e-mail, 30 March 2009.

⁵⁹ “JFCOM J4 FY09 Rotational Requirements (SECRET)” spreadsheet, to the author e-mail, 17 February 2009. Information extracted is unclassified.

⁶⁰ Lt Col John Allen, “SAA/BOS-I Joint Land Use Planning,” Air Force Lessons Learned, <https://www.jllis.mil/USAF/index.cfm?disp=lms.cfm&doit=view&lmsid=26062>, (accessed 12 January 2009).

⁶¹ Maj David S. Vaughn, “Defining Base Operating Support and Airfield Operating Support,” 3.

⁶² DoDD 3000.05, *Military Support for SSTR Operations*, 2.

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